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09/480,986	01/10/2000	MICHAEL BOLOTSKI	18035-001010	5021

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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
PIZIALI, JEFFREY J	

ART UNIT	PAPER NUMBER
2673	23

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/480,986	Applicant(s) BOLOTSKI ET AL.	
	Examiner Jeff Piziali	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2004 (Paper No. 22)*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 23 December 2003 (Paper No. 20). These drawings are acceptable.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. All amended (Paper No. 22, filed 4 May 2004) independent claims newly recite the limitation of *applying a transition voltage to the plurality of pixel elements* ***via drive transistors uniquely / individually coupled*** *to pixel electrodes.* No such transistor-to-pixel circuitry and transition voltage application combination exists in the present specification. On the contrary, the instant specification merely states, "the pixel typically includes a common top plate electrode and a bottom electrode coupled to a driving transistor" (see Page 7, Lines 28-29). No disclosure has been explicitly given regarding the application of transition voltages to the pixels via drive transistors coupled to pixels.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 18 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "substantially similar" in claims 18 and 28 is a relative term which renders the claim indefinite. The term "substantially similar" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how one skilled in the art could adequately gauge how alike two voltage amplitudes must be before they constitute "similar" (nevermind "substantially similar") voltage amplitudes.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by McKnight (US 6,144,353).

Regarding claim 1, McKnight discloses a method for operating a display having a plurality of pixels, comprising: applying a single/first transition voltage [Fig. 2C, 151] to the pixels [Fig. 2A, 208] via drive transistors [Fig. 2A, 110; Figs. 6A, 652; Fig. 6B, 662 & 663; and Fig. 6C, 674] uniquely coupled to pixel electrodes [Fig. 2A, 108] on the display [Fig. 2A, 106] during a first period of time [Fig. 2C, t_1-t_2] within a first field time [Fig. 2C, t_0-t_2], each pixel including liquid crystal material having at least a first state [i.e. "dark"] and a second state [i.e. "bright"], wherein a transition of the liquid crystal material from the first state to the second state has an associated first transition time [Fig. 2C, t_1-t_2], wherein a transition of the liquid crystal material from the second state to the first state has an associated second transition time [Fig. 2C, "0-t_0" or "t_2-t_3"], wherein the first transition time is longer than the second transition time, and wherein the single/first transition voltage induces liquid crystal material in each pixel to begin transitioning to the second state (see Column 10, Lines 1-40); thereafter while each pixel element is transitioning to the second state, applying a first paint voltage (i.e. pixel data) to a pixel during a second period of time [Fig. 2C, t_1-t_2] within the first field time, wherein the first paint voltage induces liquid crystal material in the pixel to a third state [i.e. a first data defined intensity level between t_1 and t_2 in Fig. 2C] (see Column 10, Lines 1-40); waiting a predetermined time period within the first field time; illuminating the pixel [Fig. 3A, 210] within the first field time;

applying the single/first transition voltage to the pixels [Fig. 3A, 212] via the pixel electrodes on the display during a first period of time [Fig. 2C, t_3-t_4] within a second field time [Fig. 2C, t_2-t_4]; thereafter applying a second paint voltage (i.e. pixel data) to the pixel during a second period of time [Fig. 2C, t_3-t_4] within the second field time, wherein the second paint voltage induces the liquid crystal material in the pixel to a fourth state [i.e. a second data defined intensity level between t_3 and t_4 in Fig. 2C]; waiting the predetermined time period within the second field; and illuminating the pixel [Figs. 3A-B, 216 & 218] within the second field; wherein the single/first transition voltage is between the first paint voltage and the second paint voltage (see Column 11, Line 26 - Column 12, Line 47).

Regarding claims 2, 10 and 18, McKnight discloses illuminating the pixel with an illumination source [Fig. 2A, 114] of first and second colors within the first and second field times respectively; wherein the first and second transition voltages have substantially similar amplitudes (see Column 9, Lines 24-28).

Regarding claims 3 and 11, McKnight discloses applying the single/first transition voltage to the pixels [Fig. 3B, 224] via the pixel electrodes on the display during a first period of time [Fig. 2C, t_5-t_6] within a third field time [Fig. 2C, t_4-t_6], wherein the transition voltage induces liquid crystal material in each pixel to begin transitioning to the second state (see Fig. 2C, 156); thereafter applying a third paint voltage to the pixel during a second period of time within the third field time, wherein the third paint voltage (i.e. pixel data) induces the liquid crystal material in the pixel to a fifth state [i.e. a third data defined intensity level between t_5 and

t_6 in Fig. 2C]; waiting the predetermined time period within the third field time; and illuminating the pixel [Fig. 3B, 226] within the third field time; wherein comprising an illumination source [Fig. 2A, 114] for illuminating the pixel first, second, and third colors within the first, second, and third field times respectively (see Column 9, Lines 24-28).

Regarding claims 4, 12 and 19, McKnight discloses red, green and blue colors (see Column 9, Lines 24-28).

Regarding claim 5, McKnight discloses illuminating the pixel with an illumination source [Fig. 2A, 114] (see Column 9, Lines 16-43).

Regarding claims 6, 14 and 20, McKnight discloses applying the single/first transition voltage to all the pixels at one time while holding a common electrode [Fig. 2A, 108] at a constant value [Fig. 2C, 151 between t_1 and t_2]; and wherein the first and second transition voltages are between the first and second paint voltages (see Column 10, Lines 1-50).

Regarding claims 7, 15 and 24, McKnight discloses applying the first transition voltage to a first row of pixels while holding a common electrode [Fig. 2A, 108] at a constant value [Fig. 2C, 151 between t_1 and t_2] (see Column 10, Lines 1-50), and thereafter applying the single/first transition voltage to a second row of pixels while holding a common electrode at a constant value [Fig. 2C, 151 between t_5 and t_6] (see Column 11, Line 33 - Column 12, Line 12).

Regarding claims 8, 16, and 25, McKnight discloses applying the first transition voltage via drive transistors [Fig. 2A, 110; Figs. 6A, 652; Fig. 6B, 662 & 663; and Fig. 6C, 674] uniquely coupled to a first column of pixels while holding a common electrode [Fig. 2A, 108] at a constant value [Fig. 2C, 151 between t_1 and t_2] (see Column 10, Lines 1-50), and thereafter applying the first transition voltage via drive transistors [Fig. 2A, 110; Figs. 6A, 652; Fig. 6B, 662 & 663; and Fig. 6C, 674] uniquely coupled to a second column of pixels while holding a common electrode at a constant value [Fig. 2C, 151 between t_5 and t_6] (see Column 11, Line 33 - Column 12, Line 12).

Regarding claim 9, this claim is rejected under the reasoning applied in the above rejection of claim 1, furthermore, McKnight discloses a transaction circuit [Fig. 2A, 110] coupled to each pixel; a paint circuit [Fig. 2A, 102] coupled to the transaction circuit; a timer circuit [Fig. 2A, 112] coupled to the paint circuit; and an illumination circuit coupled to the timer circuit [Fig. 2A, 114 & 116] (see Column 9, Lines 16-43).

Regarding claim 13, McKnight discloses the illumination circuit comprises a monochromatic illumination source (see Column 9, Lines 24-25).

Regarding claim 17, this claim is rejected under the reasoning applied in the above rejection of claim 1, furthermore, McKnight discloses an initialization circuit [Fig. 2A, 110] coupled to the pixels; a driving circuit [Fig. 2A, 102] coupled to the initialization circuit; and an

illumination circuit [Fig. 2A, 114 & 116] coupled to the driving circuit (see Column 9, Lines 16-43).

Regarding claim 21, McKnight discloses the first voltage [Fig. 3A, 212] is between the first [Fig. 3A, 206] and second [Fig. 3A, 214] drive voltages (see Column 11, Line 33 - Column 12, Line 12).

Regarding claim 22, McKnight discloses a method for operating a liquid crystal display [Fig. 2A; 106] comprising: applying a first voltage [Fig. 2C; 151] via drive transistors [Fig. 2A, 110; Figs. 6A, 652; Fig. 6B, 662 & 663; and Fig. 6C, 674] uniquely coupled to the pixel electrodes of the plurality of pixels of the liquid crystal display to initiate a transition of the liquid crystal material in the plurality of pixels to a clear [i.e. "bright"] state within the a first color field [Fig. 2C; t_0-t_2], applying a first drive voltage [i.e. pixel data] via a drive transistor [Fig. 2A, 110; Figs. 6A, 652; Fig. 6B, 662 & 663; and Fig. 6C, 674] uniquely coupled to a pixel electrode of at least one pixel of the plurality of pixels to initiate a transition of liquid crystal material in at least one pixel into a second state [i.e. "dark"] within the first color field; thereafter illuminating [Fig. 2C, 154] at least the one pixel within the first color field (see Column 10, Lines 1-50).

Regarding claim 23, McKnight discloses applying the first transition voltage to all of the plurality of pixel elements at one time (see Fig. 2C; Column 10, Lines 1-50).

Regarding claim 26, McKnight discloses applying a second voltage [Fig. 2C, 151] to the pixel electrodes of the plurality of pixels of the liquid crystal display to initiate a transition of the liquid crystal material in the plurality of pixels to the clear state within a second field [Fig. 2C, t_2-t_4]; thereafter applying a second drive voltage [i.e. pixel data] to the pixel electrodes of at least one pixel of the plurality of pixels to initiate a transition of liquid crystal material in at least one pixel into a third state [i.e. a first data defined intensity level between t_1 and t_2 in Fig. 2C] (see Column 10, Lines 1-40) within the second color field ; thereafter illuminating [Fig. 3A, 210] the one pixel within the second color field (see Column 11, Line 26 - Column 12, Line 47).

Regarding claim 27, McKnight discloses the first and second voltages are selected from a range between the first and second drive voltages (see Column 27, Lines 1-12).

Regarding claim 28, McKnight discloses the first and second voltages have substantially similar amplitudes (see Fig. 2C).

Regarding claim 29, McKnight discloses the first and second color fields are within the same frame (see Fig. 2D; Column 10, Line 51 - Column 11, Line 25).

Regarding claim 30, McKnight discloses red, green, and blue fields (see Column 9, Lines 24-43).

Response to Arguments

9. Applicants' arguments filed 4 May 2004 (Paper No. 22) have been fully considered but they are not persuasive. The applicants contend the cited prior art of McKnight (US 6,144,353) fails to disclose applying a single/first transition voltage to the pixels via drive transistors uniquely coupled to pixel electrodes. The examiner must, however, respectfully disagree.

McKnight does indeed teach applying a single/first transition voltage [Fig. 2C, 151] to the pixels [Fig. 2A, 208] via drive transistors [Fig. 2A, 110; Figs. 6A, 652; Fig. 6B, 662 & 663; and Fig. 6C, 674] uniquely coupled to pixel electrodes [Fig. 2A, 108] (see Column 9, Line 16 - Column 10, Line 50). Although McKnight refers to this commonly shared (amongst the pixels) electrode layer as the "cover glass electrode;" the instant application itself teaches that pixels are formed by both a bottom electrode and a common top plate electrode (see Page 7, Lines 27-29).

By such above reasoning, the rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

10. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J.P.
6 July 2004

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600